Finance & Administration Committee

California Public Employees' Retirement System

Agenda Item 7a

December 17, 2013

ITEM NAME: Review of Actuarial Assumptions

PROGRAM: Actuarial Office

ITEM TYPE: Information

EXECUTIVE SUMMARY

Actuarial staff has completed its scheduled review of actuarial assumptions through a process called an experience study. The assumptions reviewed included both economic assumptions and demographic assumptions. This agenda item contains the preliminary recommendation for new actuarial assumptions as well as a draft copy of the experience study report. The final recommendation for the adoption of new actuarial assumptions by the Board is currently scheduled to occur in February 2014.

The recommended assumptions are expected to increase contribution rates for most employers at a time when their budgets are already strained. Concern has been raised that the contribution increases may be too much for employers to bear. In order to assist employers in preparing and planning for these changes, the agenda item recommends building the impact of the changes into the projected rates one year prior to implementing them in the rates. This meant that the contribution increases would not take effect until FY 2016-2017. This agenda item also looks at possible alternative amortization schedules that could be adopted.

See attachment 1 for a copy of the draft experience study report.

STRATEGIC PLAN

This agenda item supports the Strategic Plan Goal A - Improve long-term pension and health benefit sustainability. This item further supports the Strategic Plan by providing employers and other stakeholders with thorough, risk-based information about the expected course and variability of future contribution rates. In alignment with these goals, this agenda item provides this transparency well in advance of the expected impact of the assumption changes on the contribution rates.

BACKGROUND

An experience study is a summarization of actual experience over a defined period of time and is used as a guide in setting future actuarial assumptions. Experience studies which include reviews of both economic and demographic assumptions are required every four years under Board policy ACT-95-05D. The previous experience study which reviewed solely demographic assumptions was completed in 2009 and presented to the Board for adoption in 2010. The most recent review of economic assumptions was completed two years ago. Under the current Board policy, the review of economic assumptions is not due as it has not been four years since the last review. The review of economic assumptions has been advanced by two years to synchronize it with the review of demographic assumptions.

The demographic study focused on recent patterns of termination, death, disability, retirement and salary increases. It presents the results of the (demographic) experience study on the California Public Employees Retirement System using data from 1997 to 2011.

Not all demographic assumptions have the same relative impact on the results of the actuarial valuations (and hence on employer contribution rates). In almost all cases, retirement benefits make up most of the liabilities of a retirement system such as CalPERS. Accordingly, assumptions that affect retirement benefits will have more of an impact than assumptions that only affect death, disability or termination benefits. Since retirement rates, salary increases and post-retirement mortality all affect the valuation of retirement benefits, these assumptions generally have a much greater impact on contribution rates than do other demographic assumptions.

Economic assumptions affect all benefits and tend to have a significant impact on contribution rates.

ANALYSIS

Review of Economic Assumptions

To perform actuarial valuations, actuaries use certain economic assumptions to set a contribution schedule of employee and employer contributions designed to accumulate with interest to equal the total present value of benefits by the time every member has left employment. The economic assumptions used by actuarial staff to determine liabilities and set contribution rates are price inflation, wage inflation, payroll growth and the discount rate assumption.

The key results of the review of economic assumptions can be found in the draft experience study report provided as Attachment 1. Currently, staff is not recommending any changes to any of the economic assumptions.

The summary of the result of the review of economic assumptions is as follows:

- **Price Inflation Assumption:** Currently, the Board approved annual price inflation assumption is 2.75 percent which was recently reduced from 3 percent in the last economic study in 2012. Since the 2012 study, price inflation has registered under 2% per year. Going forward, market indicators today point to an expectation that future price inflation may be less than the current assumption of 2.75 percent per year. Staff is not recommending a change at this time and will revisit this assumption as part of the next review of assumptions in four years.

- **Wage Inflation Assumption:** Currently, the real wage inflation assumption is 0.25 percent. Historical data shows that wage inflation has generally been higher than price inflation by close to one percent. In the current economic environment, staff believes that low real wage inflation in the public sector is likely to continue in the near term and so is not recommending a change in this assumption. Staff expects that over time the real wage inflation assumption will need to move toward the historical levels of wage inflation.
- **Payroll Growth Assumption:** The payroll growth assumption is used when amortizing the unfunded liability of open plans as a level percentage of payroll in accordance with Board policy. The current Board adopted assumption is that payroll of open plans will grow at a rate of 3% per year. Staff is not recommending any changes to this assumption. The application of this assumption to the “classic” risk pools that were closed as a result of PEPRA is the subject of another agenda item this month.
- **Discount Rate Assumptions:** The primary economic assumption is the discount rate assumption. The current discount rate assumption is 7.50 percent per year. Over the course of the last year, the Board has reviewed its capital market assumptions and had an Asset Liability Management (ALM) workshop in November 2013. At that workshop the Board expressed a preference for a level of funding risk consistent with the base case portfolio and no margin for adverse deviation. Assuming that the Board adopts an asset allocation substantially similar in risk/return characteristics, the Actuarial Office is not recommending any change to the discount rate assumption – that it remain at 7.5% per year.

Review of Demographic Assumptions

To perform actuarial valuations, actuaries use several demographic assumptions to set a contribution schedule of employee and employer contributions designed to accumulate with interest to equal the total present value of benefits by the time every member has left employment. These demographic assumptions include for example mortality rates, retirement rates, disability rates (both work and non-work related), and rates of salary increases due to seniority and promotion.

After performing the review of demographic assumptions, staff is recommending several changes to these assumptions. The new demographic assumptions being proposed would have predicted retirement, termination and mortality experience much closer to the actual experience than the current assumptions. Staff feels that these new assumptions will be substantially better at predicting long-term future experience than the current assumptions.

Life expectancies in the developed world are continuously improving and this is consistent with the data used in the experience study. Staff believes that proper funding of the system requires the inclusion of mortality improvements in the mortality assumption. This is consistent with best practices and changing actuarial standards. Not responding to these changes could lead to a requirement to qualify the valuation report with implications for our financial statements and the financial statements of participating employers.

While the data in the experience study shows even greater improvements in mortality, staff is recommending using a 20 year mortality improvement projection using Scale BB. This recommendation is composed of a 7 year static improvement projection to bring mortality data to the current valuation cycle and another 13 years to account for future improvements. Scale BB is the most current national standard mortality projection scale and is based on Social Security data. Given the data requirements needed to build a mortality improvement scale, staff feels that the use of a national standard table is preferable to developing a CalPERS specific table. .

The key results of the review of demographic assumptions can be found in the draft experience study report provided as Attachment 1. The summary of the result of the review of demographic assumptions is as follows:

- **Mortality:** The review of mortality rates has shown that members have a longer post-retirement life expectancy than currently assumed. Under the proposed assumptions, the life expectancy of males is increasing on average by about two years and is increasing on average by about one and a half years for females.
- **Retirement Ages:** The review of retirement rates has shown a continued trend of significantly earlier retirement ages for State CHP and POFF members as well as Public Agency members subject to the 3% @ 50 benefit formula. The review also showed slightly earlier retirement ages for State Safety, State Miscellaneous, and local agency safety CPO and Police members while slightly higher retirement age on averages for local agency safety Fire and Miscellaneous members. Changes are being proposed to the retirement rates to better reflect the observed trend.
- **Salary scale:** The review showed a continuation of the trend of higher than expected salary increases for Public Agency safety members, State POFF and CHP members with high service. Staff believes it is the result of longevity pay or increased promotional activity. Staff is recommending increasing the salary scale assumption for these groups. Changes are also being recommended for most other groups. However, the changes being proposed for the other groups have minimal impact with some resulting in slight increases in contributions and some resulting in slight decreases in contributions.

- **Disability Retirement:** The review of disability experience revealed a continued trend downward in the last four years. Staff is recommending lowering the rates of disability retirements across all safety groups.
- **Other assumptions:** Mixed results for other assumptions that have minimal overall impact on cost. These are described in detail in the experience study report.

Possible Alternative Assumption for Mortality Improvement

At the Board workshop on projecting mortality improvement held in October, there was considerable discussion about the level of future improvement to assume. As was discussed at that time, there is at least one consideration – the lower level of smoking in California – which could indicate that future improvements in mortality will be less in the future in California relative to the rest of the nation. In effect, smoking rates do not have as much room to fall so mortality improvements may be less.

As a result of two other issues discussed at the mortality projection workshop – an indication that mortality is improving faster amongst groups with higher levels of educational attainment and better access to health care and the higher rates of improvement experienced by the CalPERS covered population in recent years – the Actuarial Office is recommending a 20 year static projection using Scale BB.

However, if the Board believes that the recommended mortality improvement will overstate the amount of improvement achieved in the future, it could select a lower level of improvement than recommended above. If it were to do so, the Actuarial Office would suggest using a 15 year static projection using Scale BB.

External Review of Experience Study

As in the prior experience study, staff is having an external review performed. This review is expected to be complete prior to bringing the recommended assumptions back to the Board in February for action.

Impact on Employer Contribution Rates

The estimated impact of the recommended assumption changes on the total employer contribution rate and the total normal cost are listed in attachment 2. Note that the increase in unfunded liability resulting from the proposed assumption changes has been amortized in accordance with existing Board policy. The current Board policy states that the impact of changes in actuarial assumptions be amortized over 20 years with a 5 year phase-in at the beginning and a 5 year ramp down at the end of the 20 year amortization period. The demographics of each plan will dictate the actual impact to each plan. The ranges provided for public agencies in Attachment 2 are expected to capture about 90% of the public agency plans. The change in total normal cost and member rate would be one time impacts and are included in the change in total contribution rate.

The assumption causing the biggest impact on employer rates is the assumption for post-retirement mortality for service retirement Since the life expectancy of male members continues to increase at a faster pace than female members, safety plans, which tend to have a much higher proportion of male members, are affected more by this change than miscellaneous plans. The impact from the change in post-retirement mortality alone is causing employer rates (after the end of the five year phase in) for most miscellaneous groups to increase by about 2.5% to 5.0% of payroll, while its causing the employer rates for safety plans to go up by about 2.8% to 6.4% of payroll. Safety groups are also being impacted by the proposed changes to the salary scale assumptions. Other groups such as CHP and POFF are also impacted by the proposed changes to service retirement rates.

Note that the final impact for the State won't be known until the Board approves the 2016/2017 contribution rates for the State plans and the Schools pool in early 2016. The final impact for public agencies will be known when the Actuarial Office has completed the June 30, 2014 actuarial valuations for all employers in the summer/fall of 2015.

Impact on PEPRA Normal Costs

With the enactment of the Public Employees' Pension Reform Act of 2013 (PEPRA) new benefits were put in place for new public employees in California hired after January 1st, 2013. PEPRA requires that all new public employees in California be covered by one of the four benefit formulas created by PEPRA. In addition, PEPRA require all new PEPRA members to contribute at least 50 percent of the total annual normal cost of their pension benefit as determined by the actuary. Last year, staff determined the required contribution rate for PEPRA members based on the actuarial assumptions in place at the time. PEPRA contains a provision that states that when the normal cost has changed by more than 1% of payroll that the member contribution rate be adjusted.

Under the proposed assumption, the normal cost for miscellaneous employees is expected to increase by less than 1% of payroll and as a result should not result in an increase in member rate for miscellaneous employees. The normal cost for most safety plans is expected to increase between 1% and 2% of payroll and in some rare cases increases by as much as 3% of payroll. As a result, the proposed assumption changes are expected to result in an increase in contribution rates for safety PEPRA members ranging in most cases between 0.5% and 1% of salary. Please refer to Attachment 3 for more details on the impact of the proposed assumption change on normal cost for the PEPRA members.

Possible Alternative Amortization Schedules

The recommended changes to the actuarial assumptions will have a significant impact on participating employers at a time when their budgets are already strained. Concern has been raised that the contribution increases may be too much for employers to bear. To address this, staff has looked at two possible alternative amortization schedules that could be adopted. These are shown for the recommended assumptions. In addition, at the request of the Board, staff has included the alternative financing options for the alternative mortality assumption (i.e., 15 years of mortality projections).

The first alternative is to smooth the impact over seven years instead of the five years prescribed by current Board policy. Under this alternative the increase in actuarial liabilities is still amortized over 20 years. While it results in a more gradual increase than current policy, it has the disadvantage of resulting in a higher peak rate due to the delay in increasing contributions.

The second alternative is to amortize the increase in liability over 30 years rather than the 20 years provided by current Board policy. Under this alternative the contribution increases are still phased in over 5 years. While this alternative result in both a more gradual increase and a lower peak rate, it extends the period over which the increase will have to be paid resulting in higher overall contributions.

Attachment 5 shows the impact on employer rates with the two alternative amortization schedules

Implementation of New Assumptions

If approved, staff recommends that the new actuarial assumptions be used to set the 2016/2017 contribution rates for all employers. That means that they would be used for the first time in the June 30, 2015 actuarial valuations for the State plans and the Schools pool and in the June 30, 2014 actuarial valuations for the public agencies.

The new actuarial assumptions will also affect certain member calculations. These include the cost of any service purchased under the present value method for example military service and any optional form of benefit elected by a member. Assuming the Board adopts the new actuarial assumptions at the February Board meeting, members retiring on or after February 20, 2014, would be subject to new optional settlement factors based on the new assumptions.

The application of the new actuarial assumptions for actuarial equivalent option factors will result in most cases in a smaller reduction in benefit for members selecting an optional form of retirement, or said another way, the implementation of the new assumptions will generally benefit members upon retirement. Note that the assumption changes will result in an increase in cost for members to purchase service.

For service credit purchases under the present value method, any request postmarked, faxed or delivered to CalPERS on or after February 20, 2014, would be based upon the new assumptions.

BUDGET AND FISCAL IMPACTS

The experience study and review of assumptions was prepared internally and will be reviewed externally. Funding was already identified within existing budgetary resources. If adopted by the Board, the recommended assumption changes would result in increased contributions to the system.

ATTACHMENTS

Attachment 1 – Draft Experience Study and Review of Actuarial Assumptions
Attachment 2 – Contribution Rate Impacts of Recommended Assumptions using Current Board Amortization Policy
Attachment 3 – Impact on PEPRA Normal Cost
Attachment 4 – Contribution Rate Impacts of Recommended Assumptions with Alternative Mortality Assumption using Current Board Amortization Policy
Attachment 5 – Contribution Rate Impacts under Other Financing Options

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